REMARKS

Claims 1-19 are pending in the application. Claims 1-19 stand rejected. Claims 1-19 have been canceled. Claims 20-29 have been added. New claim 20 corresponds to claims 2+4; new claim 21 corresponds to claim 12; new claim 22 corresponds to claims 2+5; new claim 23 corresponds to claim 6; new claim 24 corresponds to claim 7; new claim 25 corresponds to claim 8; new claim 26 corresponds to claim 9; new claim 27 corresponds to claim 10; new claim 28 corresponds to claims 2+17; and new claim 29 corresponds to claims 2+18. Accordingly, no new matter has been introduced by these amendments.

Reply to the Rejection of Claims 1, 2, 4, 11 and 19 under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 1, 2, 4, 11 and 19 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,642,698 to Diehl *et al.* ("Diehl") in view of European Patent No. 0 251 159 to Klöckner-Humboldt-Deutz ("Klöckner"). Specifically, the Examiner states –

> Diehl teaches the use of plural inlets to intake passages each having its own ball-type non-return valve and each able to carry EGR and/or other gases to the engine.
>
> EP ('159) teaches a flanged intake pipe mounted to a cylinder head and including (in the head) an EGR passage with inlets to each cylinder.
>
> It would have been obvious to modify Diehl by placing the conduit in the cylinder head as taught by EP ('159) since this was a good way to save space for the system.

Claims 1, 2, 4, 11 and 19 have been canceled. New claim 20 is equivalent to former claims 2+4. For the following reasons, new claim 20 is patentable over Diehl in view of Klöckner.

Referring to Diehl, therein is disclosed an induction system for an internal combustion engine. The system includes a log 10 for receiving air drawn into the engine and individual runners 14 extending from the log 10 to intake ports 16 of the engine (col. 2, lines 45-52). Each runner 14 includes a control valve 32 so that airflow is allowed in the branches in the direction from the main passage of an anti-reversion air intake manifold 10 into the ports 16, but not in reverse (col. 1, line 66 – col. 2, line 5). A vacuum chamber 34 is provided that is operatively connected between the manifold 10 and a manifold for supplying each intake pipe 14 with a

mixture of air and crankcase gases. The vacuum chamber 34 is also connected to the crankcase by means of a PCV entry tube 38 for the extraction of gases, the exhaust manifold by means of a recirculated exhaust gas (EGR) supply tube 42, and the brake booster by means of a brake booster supply tube 40. By such connections, intake air, ventilated gases, and/or EGR can be mixed in the vaccum chamber before being supplied to each intake pipe 14 through the individual non-return valves 28 (col. 2, line 60 – col. 3, line 22). The invention according to Diehl is arranged to operate only at idle. At other (non-idle) times, the engine speed control valve 32 is closed (col. 3, lines 46-55).

Referring to Klöckner, therein is disclosed a return line or manifold 6 for leak or ventilated gas from a crankcase. This common manifold 6 is placed in close proximity to each intake pipe 3 of a cylinder. The manifold 6 is connected to a pressure regulator at one end, and is provided with openings 8 of progressively increasing size in the direction of flow for supplying each intake pipe with crankcase gas. Apart from the pressure regulator between the crankcase and the manifold, there does not appear to be any way of controlling the flow of crankcase gases into the air intake.

To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Diehl does not teach or suggest the non-return valves being located in the cylinder head, as is claimed in new claim 20. Klöckner teaches a manifold placed in the cylinder head; however, this manifold is not provided with non-return valves, nor is it connected to each individual intake pipe. Accordingly, even if one were to combine Diehl with Klöckner, one still would not have the presently claimed invention.

Further, Diehl states that its induction system is superior to an engine such as that of Klöckner's that lacks the flow control valves 28 found in Diehl. Accordingly, one skilled in the art would not look to the "inferior" system of Klöckner (according to Diehl) for modifying Diehl by placing the conduit in the cylinder head. Also, one skilled in the art would not be motivated to combine Diehl, opened by a low pressure downstream of the valve, with Klöckner, opened by a fluid flow from a source upstream of the valve.

In view of the above remarks, it is believed that new claim 20 is patentable over Diehl in view of Klöckner. Allowance of this claim, therefore, is respectfully requested.

Reply to the Rejection of Claims 3 and 13-16 under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 3 and 13-16 under 35 U.S.C. § 103(a) as being unpatentable over Diehl in view of European Patent No. 0 855 502 to AVL List GmbH ("AVL"). Specifically, the Examiner states –

> Diehl applies a noted above and EP ('502) teaches a cast or milled passage in the intake flange which sends gases into plural intake runners. Producing a similar channel by milling the flange and closing the channel with lid would have been an obvious mechanical equivalent.

Claims 3 and 13-16 have been canceled. Accordingly, the rejection of claims 3 and 13-16 as being unpatentable over Diehl in view of AVL is now moot.

Reply to the Rejection of Claims 5-7 and 9 under 35 U.S.C. § 103(a)

The Examiner has rejected Claims 5-7 and 9 under 35 U.S.C. § 103(a) as being unpatentable over Diehl and Klöckner as applied to claim 2 above, and further in view of U.S. Patent No. 5,775,357 to Regna *et al.* ("Regna"). Specifically, the Examiner states –

> Regna teaches a one-way valve formed by a flexible fiber flap which acts as part of a gasket between engine parts. Since the environment is similar to Diehl this would have been an obvious way to seal the flange.

Claims 5-7 and 9 have been canceled. New claims 22-24 and 26 are equivalent to former claims 2+5, 6, 7 and 9, respectively. For the following reasons, new claims 22-24 and 26 are patentable over Diehl and Klöckner as applied to claim 2 above, and further in view of Regna.

Diehl and Klöckner were discussed above, those arguments being incorporated herein. Referring to Regna, therein is disclosed a fuel fill valve and vent valve assembly. The invention of Regna relates to a rollover valve for the filler pipe of a fuel tank, wherein a hinged valve or flap may be either slightly open or biased to a closed state in order to prevent fuel leakage. The environment of the invention of Regna is fuel tanks, not engine cylinders and intake manifolds. The valve of Regna is not located between the flange and cylinder head, where the temperature environment can be much greater than that found in a fuel tank. Accordingly, one skilled in the art would not look to the valve of Regna as a solution for modifying the invention of Diehl as

modified by Klöckner to obtain a way to seal the flap. Further, even if one were to combine Diehl as modified by Klöckner with Regna, one still would not have non-return valves located between the flange and the cylinder head as is claimed in new independent claim 22 and its dependent claims 23, 24 and 26.

In view of the above remarks, it is believed that new claims 22-24 and 26 are patentable over Diehl and Klöckner as applied to claim 2 above, and further in view of Regna. Allowance of this claim, therefore, is respectfully requested.

Reply to the Rejection of Claim 8 under 35 U.S.C. § 103(a)

The Examiner has rejected Claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Diehl, Klöckner and Regna as applied to claim 7 above, and further in view of U.S. Patent No. 4,764,091 to Ikeda *et al.* ("Ikeda"). Specifically, the Examiner states –

Ikeda teaches a steel one-way gasket constructed as claimed.

Claim 8 has been canceled. New claim 25 is equivalent to former claim 8. For the following reasons, new claim 25 is patentable over Diehl, Klöckner and Regna as applied to claim 7 above, and further in view of Ikeda.

Diehl, Klöckner and Regna were discussed above, those arguments being incorporated herein. Referring to Ikeda, therein is disclosed a steel gasket for a compressor. The valves of Ikeda are reed valves having a first portion that opens during the suction cycle of a reciprocating piston. A second portion is opened during a subsequent compression cycle. The invention of Ikeda is used in air conditioning units. As shown above, the combination of Diehl, Klöckner and Regna does not teach or suggest non-return valves located between the flange and the cylinder head. Ikeda likewise does not teach this limitation. Accordingly, the combination of Diehl, Klöckner, Regna and Ikeda still does not teach the invention claimed in claim 22 and therefore its dependent claim 25.

In view of the above remarks, it is believed that new claim 25 is patentable over Diehl, Klöckner and Regna as applied to claim 8 above, and further in view of Ikeda. Allowance of this claim, therefore, is respectfully requested.

Reply to the Rejection of Claim 12 under 35 U.S.C. § 103(a)

The Examiner has rejected Claim 12 under 35 U.S.C. § 103(a) as being unpatentable over Diehl and Klöckner as applied to claim 4 above, and further in view of U.S. Patent No. 4,185,604 to Nagaishi *et al.* ("Nagaishi"). Specifically, the Examiner states –

> Nagaishi teaches a solenoid non-return valve on an EGR passage. Since this was a well know way of regulating the flow, such a valve would have been obvious to use in Diehl.

Claim 12 has been canceled. New claim 21 is equivalent to former claim 12. For the following reasons, new claim 21 is patentable over Diehl and Klöckner as applied to claim 4 above, and further in view of Nagaishi.

Diehl and Klöckner were discussed above, those arguments being incorporated herein. Referring to Nagaishi, therein is disclosed a feedback control system for gas flow in an internal combustion engine for the purpose of exhaust gas purification. Nagaishi, like Diehl and Klöckner, does not teach or suggest non-return valves that are located in the cylinder head. Accordingly, the combination of Diehl, Klöckner and Nagaishi still does not teach the invention claimed in claim 20 and therefore its dependent claim 21.

In view of the above remarks, it is believed that new claim 21 is patentable over Diehl and Klöckner as applied to claim 4 above, and further in view of Nagaishi. Allowance of this claim, therefore, is respectfully requested.

Reply to the Rejection of Claim 17 under 35 U.S.C. § 103(a)

The Examiner has rejected Claim 17 under 35 U.S.C. § 103(a) as being unpatentable over Diehl and Klöckner as applied to claim 2 above, and further in view of U.S. Patent No. 4,693,226 to Choma ("Choma"). Specifically, the Examiner states –

> Choma teaches mounting the flange as a separate unit on the intake pipe thereby making such a mechanical equivalent obvious to use in Diehl.

Claim 17 has been canceled. New claim 28 is equivalent to former claims 2+17. For the following reasons, new claim 28 is patentable over Diehl and Klöckner as applied to claim 2 above, and further in view of Choma.

Diehl and Klöckner were discussed above, those arguments being incorporated herein. Referring to Choma, therein is disclosed an EGR control system. The EGR system includes a

spacer 22 (see Fig. 2) insertable between the intake manifold 16 and cylinder head 44. Still, Diehl, Klöckner and Choma, alone or in combination, do not teach or suggest the collecting channel being connected to the intake pipe of the intake manifold by way of outlet channels having separate non-return valves.

In view of the above remarks, it is believed that new claim 28 is patentable over Diehl and Klöckner as applied to claim 2 above, and further in view of Choma. Allowance of this claim, therefore, is respectfully requested.

Reply to the Rejection of Claim 18 under 35 U.S.C. § 103(a)

The Examiner has rejected Claim 18 under 35 U.S.C. § 103(a) as being unpatentable over Diehl and Klöckner as applied to claim 2 above, and further in view of European Patent No. 1 024 280 to Aichi Kikai Kogyo Kabushiki Kaisha ("Aichi"). Specifically, the Examiner states –

> EP ('280) teaches an EGR channel mounted as a separate unit on an intake manifold thereby making a separate EGR channel an obvious mechanical equivalent.

Claim 18 has been canceled. New claim 29 is equivalent to former claims 2+18. For the following reasons, new claim 29 is patentable over Diehl and Klöckner as applied to claim 2 above, and further in view of Aichi.

Diehl and Klöckner were discussed above, those arguments being incorporated herein. Referring to Aichi, therein is disclosed an intake manifold 10 wherein blow-by gas is uniformly distributed to the cylinders of an engine. The gas passage 14 is integral with the collector 11. Still, Aichi, like Diehl and Klöckner, does not teach or suggest the collecting channel being connected to the intake pipe of the intake manifold by outlet channels that have separate non-return valves. Accordingly, even if one were to combine Diehl, Klöckner and Aichi, one would still not have the presently claimed invention.

In view of the above remarks, it is believed that new claim 29 is patentable over Diehl and Klöckner as applied to claim 2 above, and further in view of Aichi. Allowance of this claim, therefore, is respectfully requested.

It is believed that the above amendments and remarks overcome the Examiner's rejections of the claims under 35 U.S.C. § 103(a) as indicated herein above. Withdrawal of the

rejections is therefore respectfully requested. Allowance of the claims is believed to be in order, and such allowance is respectfully requested.

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